INDUSTRIAL BASE NETWORKING SUMMIT 2011

TARDEC

Randal Gaereminck

TARDEC

Associate Director

586-282-8602

Randal.gaereminck@us.army.mil

STRATEGIC ALLIANCES

MAKING A DIFFERENCE ONE WARFIGHTER AT A TIME

EVERY MANHOUR AND WRENCH TURN COUNTS

Report Documentation Page

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Industrial Base Networking Summit 2011

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-Early collaboration with RDECOM PIFs to expedite the development of initial prototype(s) to validate design/support test. -Limited Prototype(s) Fabrication for User Assessments/Safety Certifications. -Limited Production, when required, to bridge TDP development / transition to Depot to meet / expedite customer requirements. -Early project coordination with LCMC IBO Depot and/or RDECOM RDECs to transition TDP to Depot partner or RDECOM RDEC PIF. -Additional capacity could be combination of re-prioritizations and surge utilizing other RDEC PIFs or Depots.

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TARDEC Mission

- Provides full life-cycle engineering support and is provider-of-first-choice for all DOD ground combat and combat support vehicle systems.
- Develops and integrates the right technology solutions to improve Current Force effectiveness and provide superior capabilities for the Future Force.

Responsible for Research, Development and Engineering Support to *2,800* Army systems and many of the Army's and DOD's Top Joint Warfighter Development Programs

What is TARDEC's Industrial Base Mission?

Industrial Base Support

- ✓ LCMC Industrial Base Integration Team (IBIT) Participation
- ✓ TARDEC Industrial Base Engineering Team (IBET)
- ✓ Advanced Manufacturing Technology (AMT)
- ✓ Diminishing Manufacturing Sources and Material Shortages (DMSMS)
- ✓ Depot Liaison Rotation Program
- ✓ Center for Ground Vehicle Development & Integration (CGVDI)

Sustainment Engineering Support

- ✓ Value Engineering (VE)
- ✓ Operating & Support Cost Reduction (OSCR)
- ✓ Quality Deficiency Report (QDR)
- ✓ Integrated Collaboration & Analysis Process (ICAP)
- ✓ Industrial Base Engineering Team (IBET) (For sustainment issues)
- ✓ DLA Engineering Support (DLA 339)
- ✓ Depot Liaison Rotation Program (Platform issues)
- ✓ Diminishing Manufacturing Sources and Material Shortages (DMSMS) (Platform)
- ✓ Equipment/User Feedback (OSMIS, SDC, AMSAA, C-REPS, QDRs)

Industrial Based Engineering Team (IBET)

TARDEC's priority – Support the Fight!

Our Mission is to develop, integrate, and sustain the right technology solutions for all manned and unmanned DOD ground systems and combat support systems to improve Current Force effectiveness and provide superior capabilities for the Future Force.

Continue fostering relationships with the TACOM-LCMC, Industry & Academia.

Support Functions:

- **Sustainment Engineering Risk Assessments (SERA)**
- **Depot Liaison**
- **DMSMS & Obsolescence Management**

Tony Mitek
IBET, Team Lead
tony.mitek@us.army.mil
586-282-4968

Sustainment Engineering Risk Assessments (SERA)

- **Scope** – The effort will proactively evaluate and identify industrial base related obsolescence and sustainment risk, by leveraging existing available data.
- **Process** – Define Target Equipment, Configurations, Densities, OEM Information, and Support Strategies.
- **Benefits**
  - Evaluation of all known support risks.
  - Allows the Managers to tailor risk factors.
  - Allow for Pro-Active vs. Re-Active measures.
- **Status**

In Progress		Planned
- M915 FOV -	60% complete	- DSETS
- SUSV -	70% complete	- AVLB
- Abrams –	10% complete	- Trailers
		- M113

- **Leverage Automation Alley**
  - Database of over 17,000 TACOM and DLA Suppliers.
  - Ability to pull data for Industrial Base Health Assessments and SERAs.

Depot / Arsenal Support

Mission

- The goal of this program is to create synergies among the different areas within the TACOM LCMC and Depot communities. Providing an on-site engineer will increase collaborative opportunities to assist with issues and proposed resolutions.

ANAD, JAN 2009 – Issue Examples:

- Common Adhesive - Paladin/FAASV Transmission
- Paladin Corrosion - AVLB Pressure Plate

RRAD, JAN 2010 - Issue Examples:

- Hexavalent Chromium/Cadmium
- PLS & HET Engine Rebuild Test Specifications

TARDCE POC: Depot Liaison Action Officer:

- Adrennia Hughley, adrennia.hughley@us.army.mil
- Darin Kennedy, darin.l.kennedy@us.army.mil

Vehicle Development & Integration

Center for Ground Vehicle Development & Integration (CGVDI)

TARDEC Engineers:

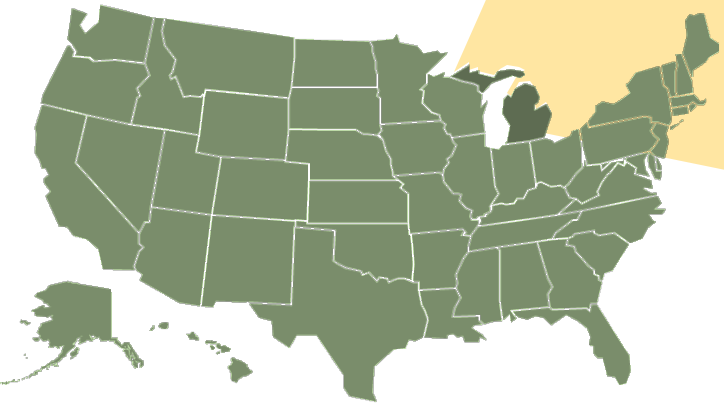
- Are a one stop center for design and development
- Develop system and sub-systems
- Fabricate prototypes
- Provide development integration
- Identify and apply advanced technology

TARDEC POCs: Dr. Bruce Brendle
***(586) 282-5798,* bruce.brendle@us.army.mil**
Mr. Luis Hinojosa
***(586) 282-8721,* luis.hinojosa@us.army.mil**

Exploiting Strategic Relationships is Key to Innovation

Geographic Benefits

- Connected to World-Class Automotive Engineering Universities at our doorstep
- Defense Industry Ground Systems Hub
- Direct Linkage to World-Class Automotive Research and Development Centers
- Strategic Engagement with 1st, 2nd and 3rd Tier Automotive Supplier Network



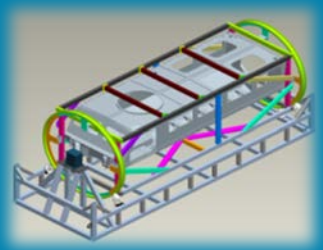
Most Robust Automotive Engineering Expertise & Academia Institutions in the World

Vehicle Development & Integration

Bridging the gap between R&D, Production and Fielding through Rapid Prototyping

Design

- Mechanical, Electrical, Electronics
- Assessment and Analysis
- Detailed Design
- 3D Modeling
- Bill of Materials

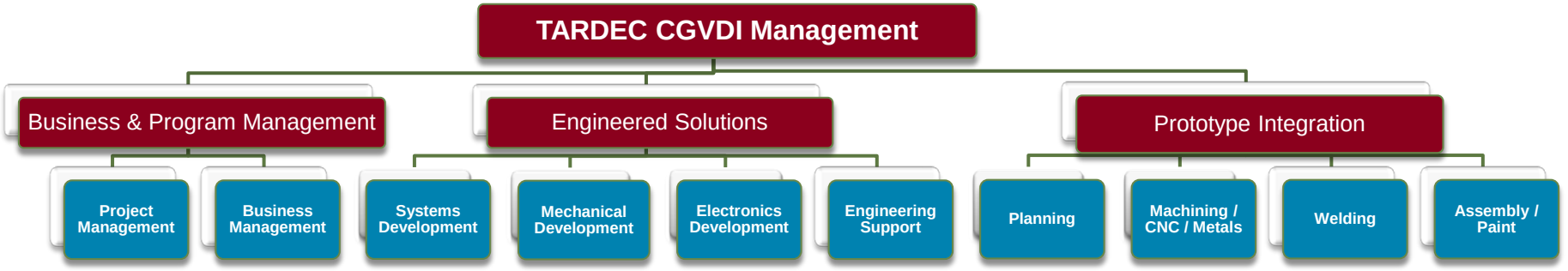


Fabrication

- Quick Reaction of Components
- Specialized Cable/ Wiring Harness
- CAD/CAM CNC Programming
- Quick reaction of parts
  - -CNC, Lathes, Mills, Water Jet/Laser Cutting

Integration

- Field-Experienced Veterans
- Component, Subsystems & Vehicles
- Across Spectrum of all DoD Ground Vehicles
- Installation Instructions



Quick Turnaround Environment - Highly Flexible

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

Advanced **Manufacturing Technology**

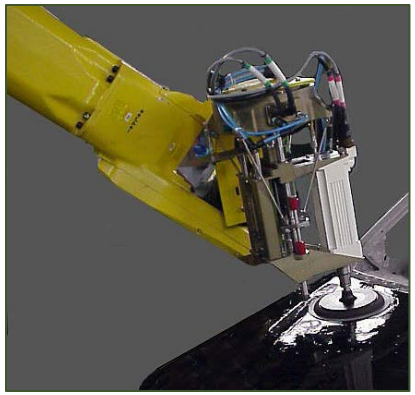
Advanced Manufacturing Technology Team (AMTT)

- Will be involved early enough to address manufacturing issues and conduct manufacturing Assessments for Risk Reduction
- Identify manufacturing maturity levels (MRL)
- Provide and help develop opportunities for process improvement
- Enable and Drive Manufacturing Technology Transfer
- Support development and delivery of advanced manufacturing capabilities improvement

POC - Tom Altobelli – AMTT, Team Lead

tom.altobelli@us.army.mil

586-282-8708



MANUFACTURING TECHNOLOGY
PROJECT PORTFOLIO AND PROPOSALS

DEFORMATION RESISTANCE WELDING
- Tubular Structural welding, Light weight structures

COMBINED PLASMA-MIG ARC WELDING
- Faster than any other wire-feed hand welding
- Robotic control for improved quality and speed

ROBOTIC 3-D WATER JET CUTTING
- Low Volume part production with low cost tooling
- Highly precise

DIRECT METAL DEPOSITION
- Part repair and reclamation

CAST QUICK REACTION CELL
- Part replacement with low-cost tooling investment
- Part replacement on site

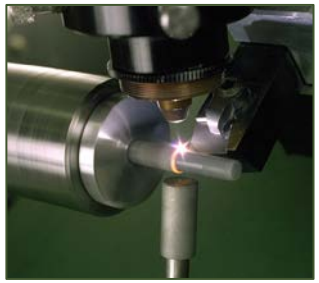
FRICTION STIR WELDING/PROCESSING
- Low Heat Stress Welding
- Robotic controlled = High Quality

FRICTION APPURTENANCE WELDING
- Robotic Controlled = High Quality
- Reduction in Touch Labor
- Reconfigurable Manufacturing

ROBOTIC AND AUTOMATION MANUFACTURING ASSISTANCE
- Robotic CARC Painting
- Robotic manufacturing, engine block cleaning
- Lift assist, load assist, large assembly installation

MODELING AND SIMULATION IN MANUFACTURING
- Manufacturing M&S
- M&S system interface with design

ADVANCED MANUFACTURING TECHNOLOGY INTEGRATION
- Flexible Manufacturing, reconfigurable manufacturing
- Light weight materials manufacturing
- Advanced Additive/Reductive Material Processing
- Advanced Manufacturing Quality Assurance Technology



Backup Information

Organizational Structure

- Executive Officer Keith Appling
- Executive Secretary Anne Roth
- **TARDEC Director**
- Organizational Development Director Ron Meadows
- Teresa Gonda Joint Center for Ground Vehicles Development Lead

- Executive Director of Research & Technology Integration Ms. Jennifer Hitchcock
  - Concepts, Analysis, Systems, Simulations & Integrations (CASSI)
  - Ground Systems Survivability
  - Ground Vehicle Robotics
  - Ground Vehicle Power & Mobility
  - Vehicle Electronics & Architecture

- Senior Research Scientist – Robotics Dr. Jim Overholt

- Executive Director of Product Development Mr. Thom Mathes
  - Center for Ground Vehicle Development & Integration
  - Force Projection Technology
  - National Automotive Center (NAC)

- Executive Director of Engineering Mr. Magid Athnasios
  - Systems Engineering
  - Life-Cycle Data Management
  - Foreign Vehicle Specs & Materials Eng
  - RAM, Test & Quality Assurance
  - Standardization & Transportability
  - Software Engineering Center
  - Industrial Base, Manufacturing, Logistics & Value Engineering
  - Eng – Systems in Acquisition

- Chief Scientist Dr. David Gorsich

- Military Deputy COL Paul Lepine

- Chief of Staff Ms. Marta Tomkiw

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

Center for Ground Vehicle Development and Integration(CGVDI) Partnerships

Recent Partnering Examples

Best Practices:

- Early collaboration with RDECOM PIFs to expedite the development of initial prototype(s) to validate design/support test.
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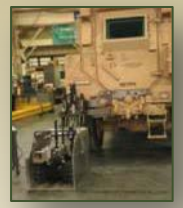
Red River Army Depot (RRAD)
- HMMWV Egress Assistance Trainer (HEAT)
- MRAP Egress Training (MET)
- M939/HEMTT Gunner Restraint System (GRS)

Blue Grass Army Depot (BGAD)
- Overhead Wire Mitigation (OWM)
- Universal Combat Lock Tool (UCLT)
- MRAP Expedient Armor Program (MEAP)
- MRAP Gunner Restraint System



Letterkenny Army Depot (LEAD)
- RG-31 TALON Robotic Deployment System
- Combat Identification Panels
- HMMWV Armor Survivability Kits

Sierra Army Depot
- WAR Reserve Fuel Tanker (WRFT)

Rock Island Arsenal
- Commercial Vehicle Armor Kits

Edgewood Chemical and Biological Center (ECBC)
- MRAP Gunner Restraint System (GRS)
- Visual Modification: MRAP Cougar

Army Research Laboratory (ARL)
- Interim High Mobility Engineering Excavator (IHMEE) Add-on Armor Kits
- MRAP Expedient Armor Program (MEAP)